

## EpiSimS Featured in *Scientific American*

It's not every day that the Computer and Computational Sciences Division (CCS) has a feature article in *Scientific American*.

Placing an article about EpiSimS in the March 2005 issue of the magazine was a major accomplishment. James P. Smith, leader of the Discrete Simulation Science Project (CCS-DSS) at the time and one of the co-authors of the article said that *Scientific American* actually requested the article.

"Their editors apparently attend prestigious science meetings and try to identify topics appropriate to their audience," Smith said. In this case, an editor made contact with Stephen G. Eubank during a meeting of the American Association for the Advancement of Science. (Eubank and Chris L. Barrett, the other two authors of the article, were technical staff members in CCS-DSS at the time. They have since left the Laboratory.)

Eubank returned to CCS-DSS with the news, and the team began work.

"I wrote the first draft," Smith said. "We actually made our deadline"—a surprising experience for the editor. The initial article was about 4,500 words long with five pages of illustrations, diagrams, and figures.

The magazine, however, wanted a 3,000-word article.

"We made a second try that was a little longer," Smith said. Then a *Scientific American* editor, Christine Soares, took over. Smith said, "She took this 50%-over article and made it into something that fit and was better. It was an amazing experience. There was not a single thing she did that wasn't right."

The three co-authors made a few minor changes, finishing just a few weeks before the March issue of the magazine came out in February. All in all, the process took nine months.

Asked about his reaction to the article, Smith said, "I thought it was great," and, he added, the response was "really good."

He said, for example, "Some university professors asked to use the materials in teaching." And he received perhaps a dozen e-mail messages from interested people ranging from elementary-school children to adults with a variety of backgrounds.

One child who enjoys playing a city simulation video game wanted to know if there might be an EpiSimS add-on. Smith noted that to simulate a large metropolitan area, EpiSimS requires a 200-gigaflop computer with 200 gigabytes of RAM—well beyond the capacity of a typical child's gaming platform.

On a more serious note, Smith said, "Several exciting new professional connections have come out of this article."

In addition, Smith did interviews for the Discover Channel and for the Canadian Broadcast Channel (Canada's equivalent to the Public Broadcasting System).

Smith said he learned some interesting things about television because of his interview experiences. For Discover, he said, John Bass in the Laboratory Public Affairs Office gave him good advice about clothing and then set him up with good lighting and a camera—but the interviewer called in by telephone from Canada. Smith had no way of knowing when the interview would appear, but, he said, he was told that it would "look like a live interview" with Smith and the interviewer in the same room. "We went through this, redoing the whole interview, about five times," he said.

The Canadian Broadcast Channel interviewed him to gather background information for a long show that was in preparation.

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### What Is EpiSimS?

EpiSimS is a tool for simulating the spread of epidemics at the level of individuals in a large urban region, taking into account realistic contact patterns and disease transmission characteristics. It knits together parameterized models for the progress of a disease within a host, transmission between hosts, and contact patterns of the hosts. It provides estimates of both the geographic and demographic distribution of disease as a function of time.